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AN ANALYSIS OF

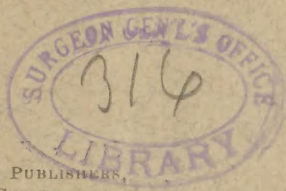
*One Hundred and Forty-One Cases of  
Pregnancy, with Reference to the*

# Blue Color of the Vagina.

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# ANALYSIS OF ONE HUNDRED AND FORTY-ONE CASES OF PREGNANCY WITH REFERENCE TO THE DIAGNOSTIC VALUE OF THE BLUE COLOR OF THE VAGINA.<sup>1</sup>

BY JOHN W. FARLOW, M.D.,

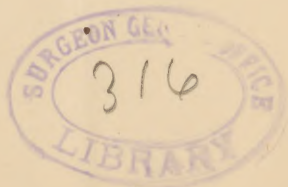
*Instructor in Gynæcology in the Boston Polyclinic.*

IN looking over the varied opinions of medical authorities on this subject, it has seemed to me that there must be some good reason for this diversity of opinion. To me, a very possible explanation is that the vulva and vagina are not sufficiently examined. In the ordinary bimanual examination to determine the existence of pregnancy, the color of the vagina is not inquired into, and, particularly where the patient is examined on the side, it is easy to see how the color of the vagina might escape observation entirely. If a sufficient number of cases are carefully examined, we shall soon be in a position to make up our minds as to the value of the blue color of the vagina, especially when found on the anterior wall.

I have looked over my records, and tabulated one hundred and forty-one cases of pregnancy, which I examined with regard to this point. In this table, I have not included a number of cases where the diagnosis was doubtful, but only those where a birth or miscarriage subsequently took place, or where the future history left no doubt in the matter.

The inspection of the vulva and vagina was made in all cases before determining the increased size of the uterus. I divided the cases into three classes:

<sup>1</sup> Read before the Section of Obstetrics and Gynæcology of the Suffolk District Medical Society, March 16, 1887.



(1) Those where there was no blue color of the vaginal orifice or urethra. (2) Those where the blue color was slightly marked, and not limited to the anterior vaginal wall or around the urethra. (3) Those where the color was markedly blue or violet, or where even a less marked blue was limited to the anterior vaginal wall or the urethra.

The following table shows in how large a proportion of cases, even in the early months, a blue color, at least, suggestive, if not characteristic, was present. In half the number, it was regarded as characteristic, and of the remaining seventy-one, one-half were suggestive. Thirty-six cases are regarded as showing no blue tinge.

TABLE OF 141 CASES OF PREGNANCY.

How Long Pregnant.	No Blue Color.	Suggestive.	Characteristic.	Total.
6 weeks . . . . .	1	1	..	2
2 months . . . . .	11	10	1	22
2½ " . . . . .	5	3	..	8
3 " . . . . .	12	5	11	28
3½ " . . . . .	1	1	1	3
4 " . . . . .	1	8	10	19
4½ " . . . . .	3	4	7	14
5 " . . . . .	..	1	15	16
5½ " . . . . .	..	1	4	5
6 " . . . . .	1	..	11	12
6½ " . . . . .	..	..	1	1
7 " . . . . .	1	..	3	4
8 " . . . . .	..	1	6	7
	36	35	70	141

Let us now examine a little in detail the column marked "no blue color," and see if we can make out any reason for its non-appearance. The case where the color was absent at seven months was a patient with chronic eczema of the vulva, and the entrance of



the vagina, as well as the whole vulva, was intensely red, and the skin was glazed and cracked. The case where there was no blueness at six months was one of secondary syphilis, and was soon followed by a miscarriage. At four-and-one-half months are three cases, where there is no blue color. One was a case of eczema, where the vulva and vaginal orifice were much excoriated and pigmented. The prevailing color was quite red. Another case had previously had three miscarriages, and two months before I saw her, that is, when she was two-and-one-half months pregnant, she had a hæmorrhage from the uterus. The third patient had had gonorrhœa a few months before. At four months, is one case of absence of blue color. The introitus was red, and the cervix and body were harder than is usually the case, and at first I was inclined to think it might not be pregnancy, but a possible fibroid.

The patient who had no blue color at three-and-one-half months was apparently about to miscarry, as she was having pains, the os was dilating, and there was some hæmorrhage.

At three months there are twelve cases. In one, there was a slight hæmorrhage two weeks before. One had gonorrhœa. One became pregnant while nursing a baby thirteen months old. The pelvis, particularly Douglas's pouch, was tender. In another, the perineum was torn into the rectum, and the introitus was a firm cicatrix. The broad ligaments were very hard. In the other eight cases, nothing unusual is noted.

Of the five cases at two-and-one-half months, two had flowed several times before I saw them.

At two months, we have eleven cases. In four the uterus was retroverted. In one the clitoris and labia were large, wrinkled, and pigmented, suggesting mas-

turbation. In two, an eczema caused a red and excoriated vulva and introitus. In another, the labia minora were bluish, but not the vagina. In still another, an erosion of the cervix existed, with marked leucorrhœa and a red vagina. I have no details as to a possible cause in the other two cases.

The case of absence at six weeks was a patient who had weaned her baby the week before.

Let us now turn to the column marked "suggestive." The one case at eight months was suffering from secondary syphilis. At five-and-one-half months is a case without special history. The one at five months became pregnant when her baby was six months old. One at four-and-one-half months became pregnant when her baby was three months old. One at four months had syphilis, and had had several miscarriages. Among the suggestive cases of a still earlier period, I find one case of bloody leucorrhœa and one of cervical polyp. The rest were apparently normal.

If we now return to the "no blue color" column, and sum up what has been noted, we shall find four cases of eczema, one of syphilis, four of recent hæmorrhage, two of gonorrhœa, two pregnant while nursing young babies, four retroverted uteri, one extensive cicatrix of perineum, one possible masturbation, with resulting pigmentation, one eroded cervix — eighteen cases in all, or one-half the cases in this column.

In the "suggestive" column, we find two cases of syphilis, one of recent hæmorrhage, two nursing young babies, one cervical polyp, recently removed — six in all. In the two columns together, are three cases of syphilis, five of recent hæmorrhage, and four of nursing young babies.

Can these conditions be considered as influencing in any way the color of the vagina? The blueness is

due to hypertrophy of the venous plexuses of the vagina, and is not a pigmentation. It seems reasonable to infer that whatever affects the blood-supply of the vagina, or changes the character of its mucous membrane, might have a marked influence on the color of these bloodvessels, as seen through the vaginal mucous membrane. A uterine hæmorrhage, polyp, or threatened miscarriage might cause a decided change in the amount of blood in the pelvic bloodvessels. I have certainly seen a well-marked blue color disappear after a threatened miscarriage, where there was considerable hæmorrhage, to reappear later. For the same reason, we should not expect the color in cases of bleeding fibroid or in unimpregnated uterus, and, in case of pregnancy, might not color appear later than usual?

In regard to syphilis, it is so common a disease that I do not know whether it has any causative effect in this instance or not. It certainly modifies the color of all eruptions on skin or mucous membrane, and it may have had a similar effect in my cases.

Exzema existed in four cases, and I think it very conceivable that the eczemotous color should so predominate as to mask the blue color. In the same way, a gonorrhœa or vaginitis might obscure the color.

Whether retroversion has any effect, I do not feel that I can draw any conclusion from four cases. The circulation in a displaced uterus is certainly disturbed, but whether this extends to the veins of the vagina I have never seen stated.

In regard to those who nursed young babies, I do not think it is of importance, for I have seen the blue color well marked in a number of such cases.

The conditions in the other cases noted I shall not have anything further to say about.

Now the question arises: does a marked or so-called characteristic blue color exist where there is no pregnancy, and how often? I have notes of three cases where the color was almost characteristic, and one where I deemed it *quite* so. The first had a blue color universally distributed over the introitus. The second had a blue tinge near the urethra. This was a case of fistula in ano. The next had a blue sheen over the whole introitus, and the last case showed a marked blue color on and at the side of the urethra. This patient had a long, hard cervix, and suffered from dysmenorrhœa. I dilated her cervix a month ago, with great relief to the menstrual pain. I saw her yesterday, and found that the blue color had extended up the urethra and anterior vaginal wall. The uterus was perceptibly enlarged, and she had had some nausea in the morning. Menstruation is expected in a day or two, and possibly she is pregnant. I shall watch for the blue color with interest.<sup>2</sup>

These notes are taken from the records of about two thousand gynæcological cases, and when we compare the table of cases of pregnancy with the facts as I have stated them in regard to the non-pregnant cases, to my mind it leaves no doubt of the value of this diagnostic sign. Among these cases, there have been, of course, fibroids, ovarian tumors, large ovaries, uterine displacements of all kinds; in fact, the cases that are usually found among so large a number of cases, but in only the four which I have detailed was the color in the least characteristic.

I have also had occasion to notice its absence in many cases of women who supposed themselves pregnant, but who were not so. Where I have used the word blue or markedly blue in this paper, wine-color

<sup>2</sup> I have seen this patient since the above was written. She menstruated without pain three days after I saw her before. The blue is not quite as marked as it was before menstruation.



or violet, would, in some cases, be more appropriate. I have examined for it with the patient on her back, and with my fingers I have separated the folds of vagina, so as to get a good view, particularly of the anterior wall of the vagina, and in some cases I have used the speculum. In private practice, and under many circumstances, it is a mode of observation that cannot be undertaken. My attention was first particularly directed to this point by Dr. J. R. Chadwick, seven years ago. I have endeavored, in my gynecological clinic, to see if my cases threw any light on the subject.

#### DISCUSSION.

DR. HOMANS asked Dr. Farlow why he used the word "blue" if the color is of a wine-red or claret color.

DR. FARLOW replied that the usual way of referring to the color is to call it blue. It is blue at first, and later assumes a marked violet or port-wine color.

DR. VICKERY asked if the color was found in extra-uterine pregnancy.

DR. FARLOW said he had seen but few such cases, and in those the color was not noted. In conclusion, he spoke of a blue color which is not infrequent about the posterior commissure of the vagina, but which seems to be connected with the vessels of the rectum and not with those of the uterus.

DR. CHADWICK. As I have been taking notes on the "Value of the Bluish Coloration of the Vaginal Entrance as a Sign of Pregnancy," for ten years, and read a paper on the subject at the last meeting of the American Gynecological Society, I venture to give my conclusions. The number of cases in which my data were complete included 281 pregnant and 56 non-pregnant women.

Of the 281 pregnant women, the color was practically absent —

At the end of 2 months in 51 per cent. of the cases.

"	2½	"	31	"	"
"	3	"	17	"	"
"	3½	"	8	"	"
"	4	"	8	"	"
"	4½	"	9	"	"
"	5	"	4	"	"

The color was *suggestive* of pregnancy —

At the end of 2 months in 34 per cent. of the cases.

"	2½	"	41	"	"
"	3	"	27	"	"
"	3½	"	45	"	"
"	4	"	30	"	"
"	4½	"	4	"	"
"	5	"	20	"	"
"	5½	"	30	"	"

The color was *diagnostic* —

At the end of 2 months in 13 per cent. of the cases.

"	2½	"	28	"	"
"	3	"	46	"	"
"	3½	"	38	"	"
"	4	"	63	"	"
"	4½	"	86	"	"
"	5	"	72	"	"
"	5½	"	70	"	"

After (and including) the end of the sixth month, the color was *diagnostic* in all but one case, in which it was *suggestive*, and one in which it was *doubtful*.

The analyses on the positive side are supplemented, and the general conclusions strengthened, by the evidence of the table on page 9, compiled from the records of patients who, for more or less good reasons supposed themselves to be pregnant.

My conclusions with regard to the blue color were:

"(1) That its absence is not to be accepted as evidence that pregnancy does not exist, especially in the first three months, where satisfactory evidence is most needed."

TABLE OF 56 WOMEN WHO PROVED NOT TO BE PREGNANT.

Period after menstruation.	Valueless.		Suggestive color	Diagnostic.		Total
	No color	Doubtful color		Characteristic color	General deep color	
1 week . . . . .	1	..	1	..	..	2
2 weeks . . . . .	2	..	..	..	..	2
3 " . . . . .	2	..	..	..	..	2
4 " . . . . .	5	3	..	..	1	9
5 " . . . . .	3	2	1	..	..	6
6 " . . . . .	12	1	..	..	..	13
7 " . . . . .	1	..	..	..	..	1
2 months . . . . .	5	..	..	..	..	6
2½ " . . . . .	2	1	..	..	..	3
3 " . . . . .	4	..	..	..	..	4
4 " . . . . .	1	2	..	..	..	3
5 " . . . . .	3	..	1	..	..	4
6 " . . . . .	1	..	..	..	..	1
Total . . . . .	43	9	3	..	1	56

(2) *That from (and including) the second month, this color is generally present, and often of such character as to be diagnostic.*

I have found the color of great assistance in making a diagnosis in the early months of uncomplicated pregnancy, and in the later months in cases of *retroversion of the pregnant uterus*; *extra-uterine pregnancy*; in *pregnancy complicated with fibroid tumors of the uterus* or with *ovarian tumors*; in *pregnancy occurring in women with very fat or tense abdominal walls*; when the existence of pregnancy was unknown or concealed; when menstruation persisted after conception; and when conception has occurred during lactation without the intervention of menstruation.









